

Ali Kuwajerwala

M.Sc. Candidate, University of Montréal & Mila

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Actively seeking internship/full-time opportunities for the summer of 2023, and beyond.

EXPERIENCE

Applied Scientist Intern, Amazon

Summer 2022

Alexa AI Team, Amazon Devices

(Toronto, ON)

- Improved the accuracy of the conversational **NL2SQL** system by **1.5%** on the **Spider** NL2SQL dataset.
- Prototyped alternative model architectures to overcome the 512 token length limitation in existing models.
- Streamlined the team's **AWS** model development cycle by automating multiple processes in the codebase.

Machine Learning/Software Engineer, Liquid Analytics (Startup)

Summer 2021

Perform AI Application, Core Algorithms Team

(Remote, US)

- Developed highly scalable algorithms in **Julia** to quickly process logistics data for large distribution companies.
- Set up queuing infrastructure using **AMQP** and **RabbitMQ** to handle upto 300,000 requests each second.
- Deployed **AWS** services to efficiently host our software in the cloud, simplifying the CI/CD pipeline.

Robotics Researcher, RVL Lab

Sep. 2020 – Apr. 2021

Robot Vision and Learning Lab, University of Toronto

Toronto, ON

- Developed novel data augmentation techniques for improved autonomous driving performance in mobile robots.
- Responsibilities: data collection, performing simulation experiments, designing/debugging the ANN architectures.
- Performed real robot experiments with a Husky robot; including sensor setup and **ROS** Node configuration.
- Joint first author for the paper: Sharma D, **Kuwajerwala A**, Shkurti F. *Augmenting Imitation Experience via Equivariant Representations*. arxiv.org/abs/2110.07668 (**Accepted @ ICRA 2022**)

Software Developer, EPSON

Jul. 2018 – Apr. 2019






Machine Vision Team, Robotics Department, EPSON Canada

Markham, ON

- Developed 3D object detection and pose estimation technologies for commercial bin picking robots.
- Automated evaluation tasks using **Python** and **Bash**, increasing (upto 5x) the amount of tasks run each day.
- Evaluated and debugged algorithms, analyzed research results to diagnose and fix detection/estimation issues.

PROJECTS

All code available on Github – click the links below!

Model Based RL for Autonomous Driving <i>Python, PyTorch, OpenAI Gym</i>		Dec. 2021
Modelling Uncertainty in Neural Networks <i>Python, PyTorch</i>		Dec. 2021
Backwards Reachability Analysis Tutorial <i>Matlab</i>		Dec. 2020
Feature Visualization for ANNs (Workshop) <i>Jupyter Notebook, Python, Tensorflow</i>		Dec. 2019
NeoCirkuits (Android App) <i>Java, Android Studio</i>		Summer 2018

EDUCATION

University of Montréal & Mila (Currently Enrolled)

M.Sc, Computer Science (Robotics and Artificial Intelligence)

Sep. 2021 – May 2023

- Supervisor:** Prof. Liam Paull, director of the Montreal Robotics and Embodied AI Lab.
- Preprint:** *ConceptFusion: Open-set Multimodal 3D Mapping* **Link:** concept-fusion.github.io

University of Toronto

H.B.Sc, Computer Science & Math CGPA: 3.63

Sep. 2016 – May 2020

- Award:** Received the NSERC Undergraduate Student Research Award, a value of \$5600. (2020)
- Extracurricular:** Co-Founder & Head of Operations of the Robotics Club. (2019-2020)
- Teaching Assistant:** Mobile Robotics (CSC477), Data Structures (CSC263), Theory of Computation (CSC236).

TECHNICAL SKILLS

Languages: Python, Julia, C/C++, Java, SQL

Developer Tools: Git, ROS, Amazon Web Services, OpenAI Gym, Android Studio, CUDA, ssh, VNC

Libraries: PyTorch, Tensorflow, OpenCV, pandas, NumPy, scipy, Matplotlib, Plotly